Archaeological
Institute
of America

DYNAMIC SYMMETRY FROM THE DESIGNER'S POINT OF VIEW

THE proportions of Athenian vases have always been a source of special delight to lovers of Greek art. The effect of a well-made Attic shape is, indeed, so peculiarly satisfying to our artistic sensibilities that we have long vaguely felt that there must be a definite underlying principle that makes it so; in other words, that the whole must be an interrelated theme, in which the proportions of the different parts to one another are all nicely thought out. For Athenian pottery is, as has been well said, the only "architectural" pottery in the world. It shares with Chinese or Persian pottery beauty of curve; but in contrast to both of these it is strongly articulated. While one fine curve is what the oriental artist mostly aimed at, the Greek liked to separate the different parts of his vase from one another. He not only considerably narrowed the neck and the base of his body, but generally broke the continuity of his line at these points, making the neck, the body, and the foot three clearly defined parts; and by occasional further articulations in the neck and the foot and by the regular addition of handles he introduced still more divisions. The proportion of these distinct parts to one another give a Greek pot its unique quality of a well-designed piece of architecture. How important an element this subtle interrelated proportion is can be seen when we look at modern imitations of Greek forms, which, though they often correspond fairly closely in general outline to their models, almost invariably lack the element of vitality so conspicuous in the Athenian products.

Was this extraordinary sense of proportion so inborn in the Greek artist that he attained it unconsciously in whatever he created? Or did he produce it only after deliberate and painstaking effort? It is hard and, perhaps, impossible to decide this question definitely; but we may look at the evidence at hand. We know that temperamentally the Greek artist was very willing to exert himself. To him art was not something to be produced on the spur of the moment in a haphazard fashion, but the result of highly trained endeavor. Not only could he stick to a few

structural problems in sculpture almost for generations until they were satisfactorily solved—a feat that no artist before him had performed; but he planned for himself carefully worked-out canons of proportion in the human figure which held sway for long periods at a time. In architecture he was equally painstaking. The gradual development of the echinus outline in the Doric capital is proof enough of how absorbing the perfect solution of a single problem was to him; and the subtle refinements of temple buildings have long ago convinced us of the painstaking work which went to produce the results we admire. So that the Greek sculptor and architect, at least, did not rely solely on their artistic inspiration—though they had an unusual amount of it!—but worked hard on laws governing their art and applied them with assiduity.

It is, therefore, not a far-fetched idea to suppose that an Athenian potter was akin in spirit to his fellow artists; that he did not make his shapes as the whim dictated, but designed them beforehand, and then executed them to given measurements. That would be the practice of a potter of standing at the present day. He pins a drawing of his shape on a board by his side and controls the widths and heights of the pot he is making by the use of rules and calipers. Why should it not have been the same with his Greek predecessor who temperamentally was even more prone to fastidious, accurate work,—as the highly finished character of his products shows? Since Athenian pottery is invariably "turned" as well as "thrown" on the wheel, a design could be copied with great faithfulness, while the shrinkage in the fire was, of course, proportional.

But if we concede that it was natural for the Athenian potter to design his vases before making them, and that their harmonious proportions are not improbably due to conscious calculation, there comes the further question: What proportional scheme did he use in his design? In the past we have not devoted much attention to this important question, simply because we had no clue as to what this proportional scheme was. It is true that Vitruvius mentions a linear unit in architecture and sculpture, but this has been given up as unworkable, so it seemed useless to apply it to pottery. But now Mr. Jay Hambidge has come forward with an entirely new suggestion.[1] According to him the different parts of an Athenian vase are not interrelated in linear

[1] Cf. *Dynamic Symmetry, The Greek Vase*, Yale University Press, 1920.

proportion but in surface areas. In other words, the proportion is not arithmetical but geometrical. And it has this further property that it is the same proportion which is operative in nature; for it apparently occurs in plant and shell life and, perhaps, even in our own skeletons. So that it is not an arbitrary formula, but a principle identical with that underlying the processes of natural growth, and as such one that would help to explain the peculiar sense of rhythm and vitality of Greek art. To support his theory Mr. Hambidge has measured—or rather had measured for him—a large number of vases in different museums, analyzed them according to his geometrical scheme,[1] and found that they conformed with surprising accuracy. Mr. Caskey has done the same with over two hundred vases in the Boston Museum and has come to the same conclusion. Professor Rhys Carpenter, however, in a recent number of the AMERICAN JOURNAL OF ARCHAEOLOGY, 1921, No. I, pp. 17 ff., has not only questioned this evidence, but presented what to him appear serious objections to the theory. As the question at issue is of importance, and Mr. Carpenter's difficulties are not those of a single person but shared by others who, perhaps, have not gone so fully into the matter as he has, it is worth while to meet these objections, if possible.

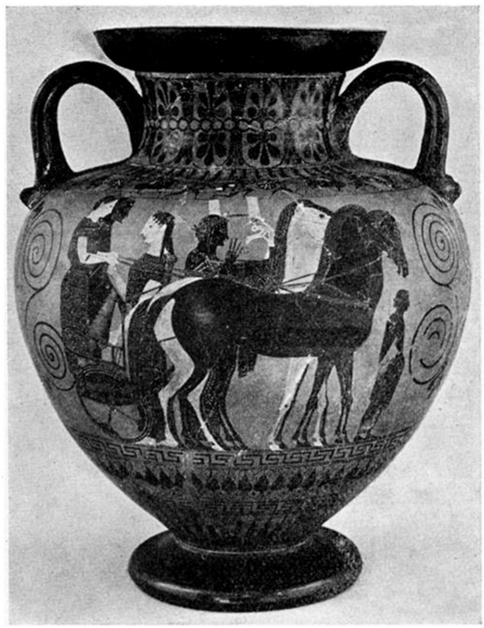

FIGURE 1.—AMPHORA: METROPOLITAN MUSEUM: NEW YORK.

Mr. Carpenter's two chief contentions are briefly that (a) Mr.

[1] In this article we take for granted an elementary knowledge of this scheme on the part of our readers. We are throughout using the terms adopted by Mr. Hambidge.

Hambidge's geometrical ratios are purely accidental and, perhaps, due to skilful manipulation on the author's part; and in many cases an arithmetical linear ratio can be made to serve as well; and (b) that to obtain Mr. Hambidge's geometrical ratios is a matter of such abstruse mathematics that we cannot credit the "humble slaves" which produced Athenian pottery with this advanced knowledge.

Mr. Caskey in his *Geometry of Greek Vases*, pp. 26-34, has dealt at length with Mr. Carpenter's attempts to translate dynamic ratios into linear units, and we will refer the reader to his conclusions. I propose here to deal chiefly with Mr. Carpenter's other contention—that the dynamic scheme is so "redoubtable" and "mystifying" that it is unlikely to have been used by the Athenian potters. To try and settle this point we must be no longer analyzers of Greek vases, but designers of them. In other words, we must no longer deal with a vase as a finished product, of which the proportional scheme has to be determined, but with the shape as it might exist in the brain of the artist. Let us imagine, then, that we are the Greek potter who is designing the beautiful black-figured amphora (Fig. 1)—a vase chosen at random,[1] as one of obviously fine proportions and one that has not been hitherto measured. The measurements of this amphora are:

Total height	47.1	cm.
Total width	38.2	"
Width of lip	24	"
Height of lip	3.5	"
Smallest width of neck	15.5	"
Height to bottom of neck	10.6	"
Height of foot (with moulding)	3.8	"
Width of foot	20.6	"
Height of handles	44.5	"
Height to projection of handles	34.55	"

The dynamic ratio of its containing rectangle, *i.e.*, its height divided by its width, is 1.236, which is "two whirling squares." To obtain such a rectangle all we have to do is to draw one whirling square AN on top of another MW—a very simple geometric exercise (cf. Fig. 2). By applying a square FW in the whole

[1] This amphora and the kalpis described below are both recent accessions of the Metropolitan Museum of Art. The measurements were taken by Miss Van Ingen, an assistant in the Classical Department, Mr. Bollo, the Museum designer, and myself, the three of us checking one another's conclusions continually.

figure AW, and by subdividing the whirling squares into their component parts of squares and smaller whirling squares—again a very simple undertaking—and by drawing the diagonals of the chief figures so formed, we obtain the salient points as follows:

Width of lip = intersection of the diagonals BJ and EH
Height of lip = intersection of the diagonals CJ and EH
Smallest width of neck = intersection of the diagonals BN and GE
Height of foot = intersection of the diagonals PU and TQ
Greatest width of foot = intersection of the diagonal FW and side PS (error of 1 mm.)
Height of handles = intersection of the diagonals CH and BJ

The little moulding marking the bottom of the neck comes exactly on the line of a 1.045 figure applied within the 1.236

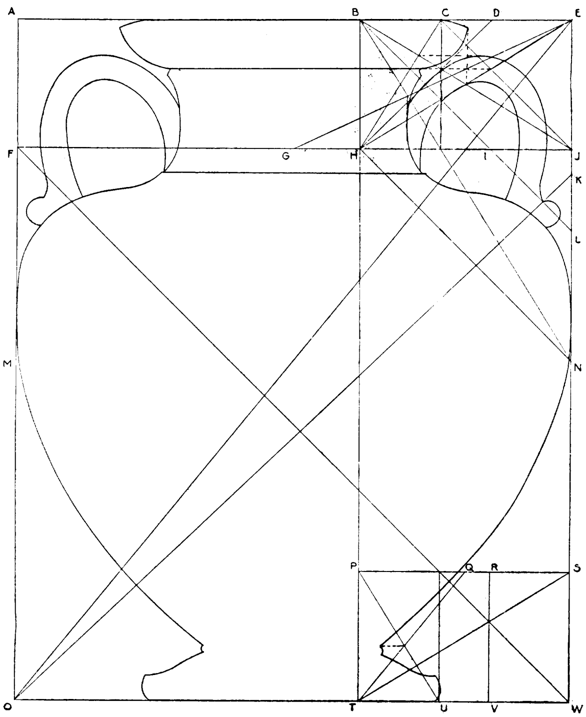

FIGURE 2.—ANALYSIS OF AMPHORA IN METROPOLITAN MUSEUM.

figure; and the intersection of the diagonal of this 1.045 figure, KO, and of the square, BL, gives us the point of the projection of the attachment of the handle—a conspicuous point in the design.

What is there mystifying and abstruse in this drawing,[1] which with the help of a rule, a T square and dividers can be made in a few minutes, and which presupposes only the elementary knowledge of the chief subdivisions of a whirling square? Though arithmetically these rectangles with their decimal ratios may seem "redoubtable," geometrically—which is the way the designer used them—they can be mastered by a child of ten. And yet there is nothing mechanical in designing a vase by this method. The choice of points—which is the most important part of the design—is left entirely to the instinct of the artist; so that all the method supplies is a useful framework within which the imagination can play at will. We may guess that the artist's procedure was, perhaps, as follows. First he drew freehand a rough sketch of his shape; then he put this into a containing rectangle of dynamic ratio, drew his subdivisions and diagonals, checked thereby his proportions, and then altered these where necessary to make them conform to the dynamic scheme. In time his eye may well have become so trained that there were hardly any alterations in his first sketch.

FIGURE 3.—KALPIS: METROPOLITAN MUSEUM: NEW YORK.

To take another example, this time a red-figured kalpis, purchased recently by the Metropolitan Museum (Fig. 3)—likewise a beautiful shape not hitherto measured. The measurements are as follows:

Greatest height	37.55	cm.
Width, with handles	39.6	"
Width of body	31.5	"
Width of lip	14.6	"
Smallest width of neck	9.7	"

[1] It must be remembered that the drawings have been reduced one-fifth of their full size.

Width at bottom of body	9.2	cm.
Width of foot	13.8	"
Height of foot (with moulding)	2.21	"
Height of handles at side	25.89	"
Height of handle at back	35.85	"
Height to top of panel at shoulder	31.55	"
Height to top of palmette border	23.35	"
Height to bottom of palmette border	20.15	"

These give the following ratios:

Rectangles formed by the greatest height and the greatest width (*i.e.*, including the handles), 1.0557, which is the reciprocal of the figure made up of half a square plus the reciprocal of a root five rectangle (.5+.4472).

Rectangle formed by the greatest height and the width of the body, 1.191, which is two squares minus half a whirling square (2−.809).

From the designer's point of view these "redoubtable" rectangles are obtained by very simple methods. The drawing of a square, its bisection, and the addition of a root five rectangle on the longer side of the half square gives the allover shape (Fig. 4). By subdivisions of the obvious component parts, such as drawing

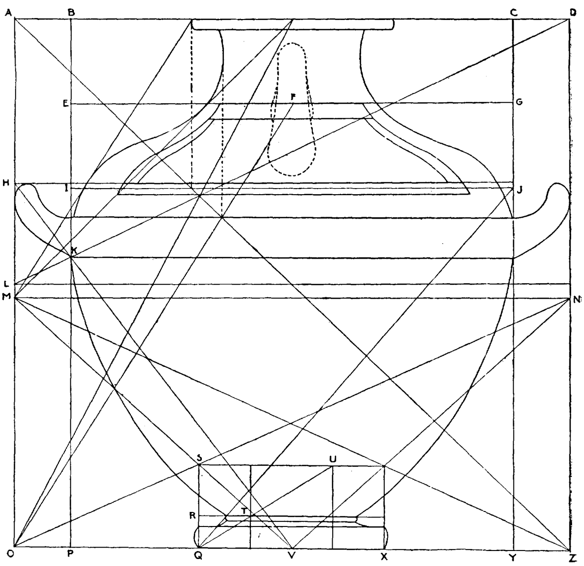

FIGURE 4.—ANALYSIS OF KALPIS IN METROPOLITAN MUSEUM.

a square EY and a .809 figure IY in the 1.191 rectangle, and by drawing the diagonals to these figures, the salient points are easily obtained as follows:

Width of lip = intersection of the diagonal AZ and the side IJ (of the .809 figure)
Smallest width of neck = intersection of the diagonals AZ and OF
Width at bottom of body = intersection of the diagonal QJ with side RT
Width at top of foot = intersection of the diagonals MZ and VN
Height of foot = intersection of the diagonal QU and side RT (of square in $\sqrt{5}$ rectangle SX)

Height of handles at side = continuation of line VK to side AO
Attachment of handles at side = intersection of diagonal LD and side BP
Height to top of panel on shoulder = end EG of square EY
Height to top of palmette border = intersection of diagonals OF and AZ
Height to bottom of palmette border = intersection of diagonal LD and side BP

The whole performance amounts to a rather delightful drawing exercise without any use of complicated ratios or numbers—one which we can well credit any intelligent Greek to master with ease. Mr. Carpenter makes much of the supposed ignorance and lowly status of the potters. As a matter of fact these potters were merely non-citizens, foreigners who might be highly intelligent people. And all we have to judge them by—their work—shows us that they were masters of their art; so highly expert in all the technical difficulties of their profession, that their intelligence is vouched for.

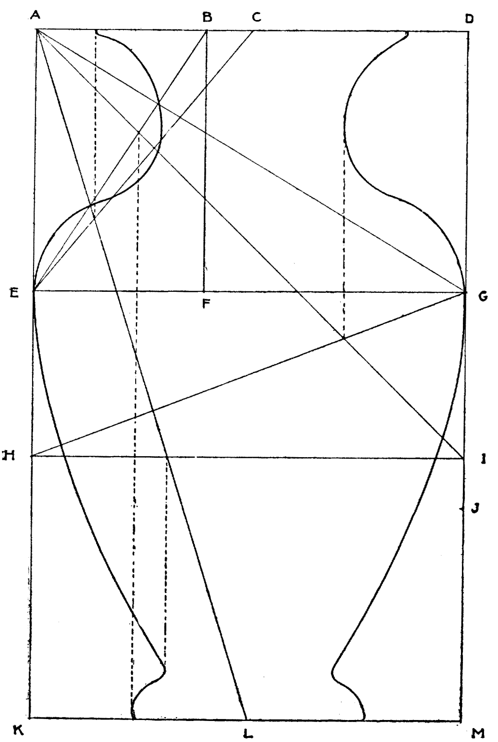

FIGURE 5.—ANALYSIS OF MODERN VASE.

As a third example let us take not a Greek vase but a modern one, which was designed and executed according to dynamic

symmetry (Fig. 5). As it is a very simple scheme, it may help to show how easy such a design can be. The containing rectangle (the greatest height, 25.4 cm., by the greatest width, 15.7 cm.) has a ratio of 1.618. That is, it consists of a whirling square, obtained by drawing a square EM, bisecting one side of it at J, and making the line DJ equal to the line EJ. We apply a square in this figure on the end AD, and thereby have two squares overlapping to the extent of figure EI. We likewise apply a square in the smaller whirling square AG, namely BG. If we draw the diagonals of the figures thus formed, our salient points are obtained very neatly as follows:

Width of lip = intersection of the diagonals AL and EC
Smallest width of neck = intersection of the diagonals AI and HG
Width at base of body = intersection of the diagonal AL with side HI
Width of foot = intersection of the diagonals AI and EB

Now let us turn to the method of work advocated by Mr. Carpenter, viz., the use of the linear unit. If we take the actual measurements of the amphora and of the kalpis, the smallest common divisor is found to be .01 cm. in both cases. We should have to suppose, then, that the potter took his rule, divided it into parts of $\frac{1}{100}$ cm. in length and then proceeded to get the widths and heights of the salient points of the vases thereby. This would be such a "redoubtable" arithmetical feat and the procedure of work so tedious that it is unthinkable that the Greeks attempted it. But supposing we allow a reasonable "workman's error," could the static scheme not be made to fit better? To give it this chance, I sent the measurements to Mr. Carpenter and the following tables are the best results he could obtain:

Amphora	Measurements Actual	Measurements Intended	Error	Measurements in "Dactyls"
Total height	47.1 cm.	46.98 cm.	+00.12 cm.	27
Extreme width	38.2	38.28	−00.08	22
Foot: height (to middle of base ring of bowl)	3.6	3.48	+00.12	2
width (greatest)	20.6	20.88	−00.28	12
width (on base ring of bowl)	12.2	12.18	+00.02	7
Bowl: height (from middle of base ring to join of neck)	32.85	33.06	−00.21	19
width (v. "extreme width" supra)	—	—	—	—

Amphora	Measurements Actual	Intended	Error	Measurements in "Dactyls"
Neck: height (with lip)	10.65 cm.	10.44 cm.	+00.21 cm.	6
height (without lip)	7.15	6.96	+00.19	4
least width	15.5	15.66	−00.16	9
Lip: height	3.5	3.48	+00.02	2
width	24	24.36	−00.36	14

Average error .... ±00.161 cm.
Assumed value of dactyl .... 1.74 "
Assumed value of foot .... 27.84 "

Kalpis	Measurements Actual	Intended	Error	Measurements in "Dactyls"
Body: height to top of panel on shoulders	29.6 cm.	29.52 cm.	+00.08 cm.	15
width (greatest)	31.50	31.49	+00.01	16
width (at bottom)	9.22	9.84	−00.62	5
Neck: height from top of panel on shoulders (including lip)	6.00	5.9	+00.10	3
Width	9.7	9.84	−00.14	5
Lip: width	14.6	14.76	−00.16	7½
Foot: height (to bottom of moulding)	1.95	1.97	−00.02	1
width	13.8	13.78	+00.02	7
Total height of kalpis	37.55	37.40	+00.15	19
Extreme width of kalpis	39.6	39.36	+00.24	20
Handles: height at side (*i.e.*, distance above ground)	25.82	25.58	+00.24	13
height of handle at back	35.85	35.43	+00.42	18
Projection of handles $\left(=\frac{.396-.315}{2}\right)$	4.05	3.94	+00.11	2

Average error .... ±00.1777 cm.

Decorations				
Height from bottom of body to palmette border (bottom) (=20.15−02.25)	17.90	17.71	00.19	9
Height of palmette border (=23.35−20.15)	3.20	...	......	
Interval (palmette border to panel on shoulders=25.05−23.35)	1.7	1.97	00.27	1
Height of panel on shoulders (=31.55−25.05). *N. B.* Panel, therefore, twice as high as palmette border	6.5	...	......	
Distance from bottom of palmette border to top of panel on shoulder	11.4	11.8	00.40	6

Assumed value of dactyl .... 1.968 cm.
Assumed value of foot .... 31.5 "

It will be noted (1) that the units of measurement 1.968 cm. and 1.74 cm. not only vary in the two vases, but are both arbitrary, having no apparent relation to the Greek foot; (2) that to make the vases fit even this scheme, the "error" has to be considerable. When in a width of only 9.22 cm. a reduction is made of more than 6 mm., the difference is so great that the whole appearance of a vase is changed thereby. If we allow such "errors" any vase could be made to fit any scheme.[1]

Similar attempts at making actual measurements of vases fit a static scheme have led Mr. Caskey to the important conclusion that "in most cases one or more or all of the following obstacles are encountered: (1) The unit chosen must be arbitrary, not some simple division of the Greek foot. (2) The unit must be made very small, so that the proportions have little more significance than a mere record of the dimensions would have. (3) A large margin or error must be admitted. (4) Even if the proportions can be expressed in fairly large divisions of the Greek foot no reason appears why those particular lengths were chosen rather than others."

I will let the reader judge which works out the simpler or more attractive method of obtaining salient points in Greek vases—geometrically, according to Dynamic Symmetry or arithmetically, by means of a linear unit. Naturally if the proportions of Greek vases worked out obviously into static measurements, in such simple proportions as the example quoted by Mr. Carpenter, *op. cit.* p. 33 (which is drawn at the small scale of 1 in. by less than 2 in., when obviously distances would approximate), we could persuade ourselves that that may have been the method used; though we should have been surprised to find that the Greek potter by using so obvious a scheme of proportion obtained such subtle results. But since actual experiments show that they do not, and since, therefore, we have to suppose that the potters continually varied their unit and made it of infinitesimal lengths, it is difficult to believe that this finicky method of designing was in use by Athenian potters. And why should we believe that the Greek potter could not perform the simplest drawings in geometry and yet in arithmetic was so well versed, when we know definitely that it was geometry rather than arithmetic that the

[1] In two other vases measured statically by Mr. Carpenter the results were similar. For instance, in a foot of a small oinochoe only 12.5 mm. high he was forced in order to make it conform to allow an error of almost 3 mm.

Greeks delighted in and were proficient in;[1] and that those very rectangles which to Mr. Carpenter seem so obscure, to the Greeks were the topic of common conversation, as the discussion at the opening of Plato's *Theaetetus* shows (147 D).

Professor Rhys Carpenter concludes his article on Dynamic Symmetry as follows: "To sum up,—when we notice (1) the multiplicity of indices for the containing rectangles, (2) the elaborately various and seemingly arbitrary combinations of sub-rectangles and diagonals by which the chief points of the vase are established, (3) the complete irrelevance of these rectangles to the actual areas of the vase, and especially to the contour curves which are so largely the animating life of an ancient vase, and (4) the frequent minute divergence between this intricate analysis and the simple ratios of the linear scale,—we must allow that Mr. Hambidge's discovery of a far-reaching and long-forgotten Graeco-Egyptian lore of dynamic symmetry is still very much *sub judice*. As it stands, the evidence is ingenious, but ambiguous. A priori, the probabilities are all against its being true." Let us examine these four points in the light of our recent experience of designing the vases:

(1) and (2) As a matter of fact the multiplicity of indices is not nearly so great as we may imagine. As Mr. Caskey has shown (*op. cit.* p. 25) "a large proportion of vases conform accurately to a limited number of comparatively simple rectangles," and after his long experience of measuring actual Greek vases he is able to write (p. 26), "In actual practice I have found that doubt as to the choice between two ratios very rarely arises." The same is true with the points which determine the details of the vases. An examination of Mr. Carpenter's drawing (Fig. 6, p. 31) might lead one to suppose that the points to be chosen are so numerous and so close together that the whole scheme seems absurd. But we must remember that this drawing is quite misleading because its scale is too small. Half a millimeter in so tiny a rectangle (less than 4 by 5 cm.!) would mean several millimeters in a full-sized vase, and when you begin to design you soon find that several millimeters make a considerable difference.

[1] Cf. on this subject L. Whibley, *A Companion to Greek Studies*, pp. 200–204, and A. N. Whitehead, *Encyclopaedia Brittanica, s.v.* Geometry, p. 71: "The arithmetic of the ancients was inadequate as a science of number. . . . Hence, perhaps it arose that till comparatively modern times, appeal to arithmetical aid in geometrical reasoning was in all possible ways restrained. Geometry figured rather as a helper to the more difficult science of arithmetic."

(3) Mr. Carpenter thinks that "the contour-curves are largely the animating life of an ancient vase" and complains that to Mr. Hambidge "these outlines are seemingly irrelevant." As a matter of fact when we try to design Greek shapes we presently discover that it is the proportions which largely determine the curves. We need only attempt, for instance, to widen the neck of the amphora (Fig. 1) by three millimeters (1.5 mm. on each side) to realize what a much flatter and less "animated" curve that would produce, or to widen the base of the body by the same small amount to see how the whole character, not only of the curve, but of the entire vase would be changed. In short, it is the proportions (which incidentally are the most important factor in determining the curves) which are the vitalizing element in a Greek vase.

(2) And why does Mr. Carpenter call these points "arbitrary"? In geometry the subdivision of rectangles by diagonals and by perpendiculars to diagonals is anything but arbitrary. The rectangles so formed are always intimately related to the larger rectangle, and can be expressed in terms of the containing rectangle, for any minor shape produced by a cutting of a major shape is by mathematical necessity in terms of the whole. So that such subdivisions produce a theme of interrelated rectangles, comparable, we might say, to the phrases of a musical composition.

(3) But there is another objection to these "points" which troubles Mr. Carpenter—it is what to him appears "the complete irrelevance of the rectangles to the actual areas of the vase." He explains this difficulty at length in the earlier part of his article: "The geometry is all in rectangular areas, but the coincidence of these areas with the vase is a matter largely of points on lines. Thus a certain area will establish the width of the lip, but it is not properly the *area* of the lip which is so determined, it is its linear horizontal extension. Actually, it is mainly the linear measurements along horizontal and vertical axes which are determined by this geometry of rectangular areas." But how would Mr. Carpenter have us design anything—a vase, a capital, a temple or a chair —if not on the flat? That has always been the practice of architects or of designers of anything in three dimensions, whether rectangular or rounded, and it is difficult to imagine any other method. There again actual practice in designing is a great help, for it teaches us what, perhaps, seems strange at first thought—that the proportions upon a single vertical plane de-

termine the proportions of an object in three dimensions, and the beauty of a temple façade, of a column, of the hull of a ship, as well as of a vase, is determined by the proportions of a rectangular section. And very naturally "the hastiest measurements performed on a photograph" do not tally with such a design on paper; nor do the measurements on the photograph of any building tally with those of its blue print—for the simple reason that in an object of three dimensions you have to deal with perspective.

(4) For Mr. Carpenter's fourth objection, the frequent minute divergence between the "intricate" dynamic analysis and the "simple" ratios of the linear scale we have already referred to Mr. Caskey's conclusions (*op. cit.* p. 28). Moreover, in our own experiments we have learned that at least in the designing of Greek vases (as against the analysis of them) the dynamic scheme is often simple compared to the intricate mathematics the use of a linear unit entails.

We must not conclude without a brief reference to another attack on Dynamic Symmetry by Edwin M. Blake of Brooklyn, New York, published in the *Art Bulletin* for March 1921. This attack is based, as Mr. Blake expresses it, on "mathematical and psychological" grounds. The mathematical objection resolves itself into the multiplicity of possible indices and this we have dealt with above. It is perfectly true that by putting in every conceivable subdivision of the various rectangles the scheme is reduced to absurdity. But actual experience with analyses of Greek vases shows that the Greeks did not subdivide their rectangles in such a far-fetched, intricate manner, but used only the obvious component parts. Any proportional scheme can be reduced to absurdity in like manner. If we held that the Greeks used a linear unit, the possible division of linear lengths into infinitesimal parts would not militate against the scheme, as long as the designers actually used large, simple divisions. It is only when analyses prove that the linear unit, if used, was a small fraction, that the theory becomes untenable. Similarly, in dynamic symmetry if actual analyses showed that such an intricate scheme as Mr. Blake suggests was in use, we should, of course, all agree that the idea was absurd. But actual experience demonstrates it was not, and that Greek vases can be analyzed in a much simpler and more obvious method.

Mr. Blake's "psychological" objections are, perhaps, too personal to have general application. But we may point out that

though Mr. Blake sees no beauty in certain figures of specific proportions, Plato did. He thought, for instance, half of the root-three rectangle (i. e. the scalene triangle in which the square of the greater side is three times that of the smaller) the "most beautiful" shape.[1] Moreover it is not only the containing shape, but its possibilities for design through its coördinating properties that make it of artistic value. So that if Mr. Blake says that "we cannot base differences of artistic quality on the distinction between rational and irrational quantities because the eye is powerless to make the distinction," this is a purely personal confession.

As it stands, then, we agree with Mr. Carpenter that Mr. Hambidge's discovery is still *sub judice*. No discovery of such far-reaching importance as this one can be accepted without long and many-sided weighing of the pros and cons of the evidence. But in order to determine finally this question, it is essential that as many archaeologists as possible should work independently on the problem—take their own careful measurements from actual vases and make their own analyses and, if possible, their own designs, and then see where this cumulative evidence leads us to. A priori, however, it seems to me, given the painstaking temperament of the Greek artist and the subtle character of the dynamic scheme, there is a possibility that we are at last in possession of the actual working scheme of Greek design.

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[1] Cp. *Timaeus*, 54 C.